

Claims

1. In a nanochannel substance in which an oxide layer contains a surfactant micelle, a nanochannel structure containing a functional molecule, characterized in that, a functional molecule is contained in the nanochannel.

2. The nanochannel structure containing a functional molecule according to claim 1, wherein the oxide layer mainly comprises silicon oxide.

3. The nanochannel structure containing a functional molecule according to claim 1, wherein the functional molecule is a chelate molecule.

4. The nanochannel structure containing a functional molecule according to claim 1, wherein the nanochannel substance is subjected to a treatment of making it hydrophobic.

5. The nanochannel structure containing a functional molecule according to claim 4, wherein the nanochannel substance contains an agent for making hydrophobic.

6. The nanochannel structure containing a functional molecule according to claim 5, wherein the nanochannel substance in which the oxide layer mainly comprises silicon oxide contains a silane coupling agent.

7. A nanochannel thin film containing a functional molecule which is characterized in that any of the nanochannel structures mentioned in claims 1 to 6 is arranged in a form of thin film on a solid substrate.

8. The nanochannel thin film containing a functional molecule according to claim 7, wherein the nanochannel is sedimented in many layers on a solid substrate in a three-dimensional manner.

9. A method for the manufacture of a nanochannel structure containing a

functional molecule, characterized in that, a nanochannel substance where an oxide layer contains a surfactant micelle is formed from an acidic aqueous solution of alcohol containing a surfactant and an alkoxide compound which is able to form an oxide and then a functional molecule is impregnated in the nanochannel substance

10. The method for the manufacture of a nanochannel structure containing a functional molecule according to claim 9, wherein a hydrophobically treating agent is added to the acidic aqueous solution of alcohol.

11. The method for the manufacture of a nanochannel structure containing a functional molecule according to claim 10, wherein heating or drying is conducted on a solid substrate to form a nanochannel substance on its surface and then a functional molecule is impregnated in the nanochannel substance.